



TRANSMITTAL FORM

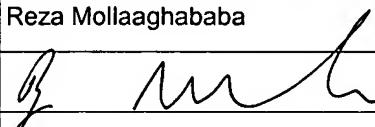
(to be used for all correspondence after initial filing)

		Application Number	10/661,832
		Filing Date	September 12, 2003
		First Named Inventor	Qing Hu
		Art Unit	N/A
		Examiner Name	Not Yet Assigned
Total Number of Pages in This Submission	1	Attorney Docket Number	101328-0177

ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to Group
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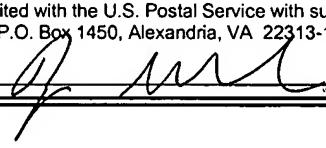
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	NUTTER MCCLENNEN & FISH LLP Reza Mollaaghbababa	
Signature		
Date	Feb. 25, 2004	

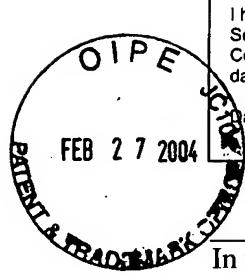
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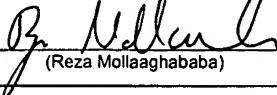
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Dated: Feb 25, 2004 Signature: 
(Reza Mollaaghataba)

Docket No.: 101328-0177
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Qing Hu, et al.

Application No.: 10/661,832

Filed: September 12, 2003

Art Unit: N/A

For: METAL WAVEGUIDES FOR MODE
CONFINEMENT IN TERAHERTZ LASERS
AND AMPLIFIERS

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
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Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

A copy of each reference on PTO/SB/08 is attached.

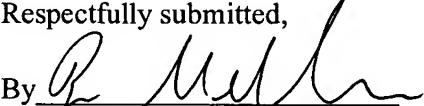
In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 141449, under Order No. 101328-0177. A duplicate copy of this paper is enclosed.

Dated: Feb. 25, 2004

Respectfully submitted,

By 
Reza Mollaaghbabu

Registration No.: 43,810
NUTTER MCCLENNEN & FISH LLP
World Trade Center West
155 Seaport Boulevard
Boston, Massachusetts 02210-2604
(617) 439-2000
(617) 310-9000 (Fax)
Attorney for Applicant

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Substitute for form 1449A/B/PTO				Complete If Known	
				Application Number	10/661,832
				Filing Date	September 12, 2003
				First Named Inventor	Qing Hu
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	1	of	2	Attorney Docket Number	101328-0177

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
AA	US-6,144,679	11-07-2000	Herman, et al.		
AB	US-6,563,622-B2	05-13-2003	Mueller, et al.		
ACE	US-5,936,989	08-10-1999	Capasso, et al.		
AD	US-5,745,516	04-28-1998	Capasso, et al.		
AE	US-5,509,025	04-16-1996	Capasso, et al.		
AF	US-5,457,709	10-10-1995	Capasso, et al.		
AG	US-6,188,477-B1	02-13-2001	Pu, et al.		
AH	US-6,154,475	11-28-2000	Soref, et al.		
AI	US-6,370,219-B1	04-09-2002	Peale		
AJ	US-6,472,683-B1	10-29-2002	Li		

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
	CA	Kazarinov and Suris, "Possibility of the amplification of electromagnetic waves in a semiconductor and superlattice," Sov. Phys. Semicond. 5, 707 (1971)			
	CB	Faist, et al., "Quantum cascade laser," Science 264, 477 (1994)			
	CC	Beck, et al., "Continuous Wave Operations of a Mid-infrared Semiconductor Laser at Room Temperature," Science 295, 301 (2002)			
	CD	Helm, et al., "Intersubband Emission from Semiconductor Superlattices Excited by Sequential Resonant Tunneling," Phys. Rev. Lett. 63, 74 (1989)			
	CE	Kohler, et al., "Terahertz semiconductor-heterostructure laser," Nature, 417, 156 (2002)			
	CF	Tredicucci et al. "High performance interminiband quantum cascade lasers with graded superlattice," Appl. Phys. Letter. 73, 2101 (1998)			
	CG	Rochat, et al., "Low-threshold terahertz quantum-cascade lasers," Appl. Phys. Lett. 81, 1381 (2002)			
	CH	Williams, et al., "3.4-THz quantum cascade laser based on Longitudinal-optical-phonon scattering for depopulation," Appl. Phys., Lett. 82, 1015 (2003). Also published in Virtual Journal of Nanoscale Science & Technology, 7(8) (2003)			
	CI	Unterrainer, et al., "Quantum cascade lasers with double metal-semiconductor waveguide resonators," Appl. Phys. Lett. 80, 3060 (2002)			
	CJ	Lee, et al., "Au-In bonding below the eutectic temperature," IEEE Trans. Comp. Hybrids, Manuf. Technol. 16, 311 (1993)			

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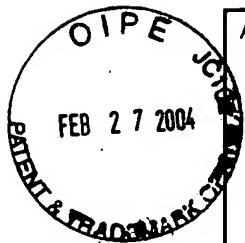
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Application Number				10/661,832
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First Named Inventor				Qing Hu
Art Unit				N/A
Examiner Name				Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number
				101328-0177

CK	Wang, et al., "Die bonding with Au/In isothermal solidification technique," J. Electron. Mat. 29, 443 (2000)	
CL	Wang, et al., "Stable and shallow PdIn ohmic contacts to n-GaAs," Appl. Phys. Lett. 56, 2129 (1990)	
CM	Troccoli, et al., "Mid-infrared (n = 7.4 μ m) quantum cascade laser amplifier for high power single-mode emission and improved beam quality," Appl. Phys. Lett. 80, 4103 (2002)	
CN	Mueller, et al., "2.5 THz Laser Local Oscillator for the EOS Chem 1 Satellite," Proceedings of the Ninth International Space Terahertz Technology Symposium, pp. 563-572, Pasadena, CA, March 17-19 (1998)	
CO	Williams, et al., "Narrow-linewidth terahertz intersubband emission from three-level systems," American Institute of Physics (1999)	
CP	Williams and Hu, "Optimized energy separation for phonon scattering in three-level terahertz intersubband lasers," American Institute of Physics (2001)	
CQ	Xu and Hu, "Electrically pumped tunable terahertz emitter based on intersubband transition," American Institute of Physics (1997)	
CR	Faist, et al., "Bound-to-Continuum and Two-Phonon Resonance Quantum-Cascade Lasers for High Duty Cycle, High-Temperature Operation," IEEE (2002)	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Application No. (if known): 10/661,832

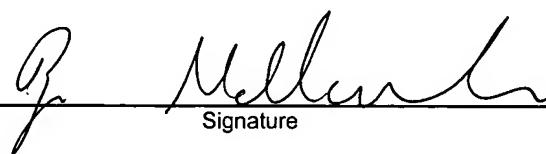
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